

An experimental and theoretical “space warp” drive: proof-tested to validate a theory of quantum gravity

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ABSTRACT

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Consider a rectangular box containing a movable mass that can be moved from one end of the box to the other and back again by the expenditure of energy. Is it possible to move the mass back and forward in the box with forces which are different in each direction, so that the box acquires a net thrust in one preferred direction? Force is the rate of change of momentum, $F = dp/dt$, so rearranging we find that momentum is the equal to the force integrated over time, $p = \int F dt$. This formula violates Newton’s 3rd law of motion when considering motion of the box during the time delay between starting and stopping the motion of the mass inside the box. Suppose a bullet is fired from one wall of a box to the other, which stops it. It is true that the stopping of the bullet by the far wall of the box cancels out the motion the box acquired from the recoil of the gun when the bullet was fired. However, during the time interval when the bullet is moving from one end to the other, the box undergoes a net displacement in a direction opposite to the direction of the bullet. Next, consider the forces involved in returning the bullet to the gun (let us assume the gun is an air pistol, or works by electromagnetic means, so that it merely uses energy). You do not have to fire the bullet back to the gun with the same momentum (time integrated force). You can instead move the bullet back to the gun very slowly, with negligible momentum transfer! Therefore, it is perfectly possible theoretically to produce a self-contained replacement for rockets and all thrusters currently in use, including helicopters, jet engines, propellers, etc. A superconducting electromagnet could be used to produce the large modulated forces on a mass to cause thrust purely by the use of energy.

By using energy to “oscillate” a mass in this non-symmetrical method, a net thrust is produced which apparently violates the “rocket principle” (Newton’s 3rd law). It is argued that there are no laws of physics, just physical mechanisms, and the concept of a law is an over-simplification of physics that leads to dogma. A 74 kg adult (the writer) using a gym rowing machine with poor (slippery) rubber feet on a smooth surface 44 strokes/minute on 20 December 2012, observed that you can pull yourself with great force in one direction, causing a recoil displacement of the entire machine and person during the time interval between starting and stopping the force, and then return to the original position using slightly less force. This ensured that a net motion occurred from the entire cycle, and the machine could be moved at will at a rate of up to about 30 cm/minute in either selected direction by this method. Momentum is conserved, so the temporary internal motion of some mass within the box in one direction induces motion (in the opposite direction) for the box, but this effect is cancelled when the mass inside the box is stopped internally by the far wall of the box. Yet there a net motion of the box during the time taken for a mass to travel between one side and the other, and if the motion of the mass on its return journey is spread over a longer interval of time, then there is a net resultant motion. In other words, a closed machine which moves a mass within it at a speed which is asymmetric (faster when the mass is going in one direction than in the opposite direction), violates the principle of conservation of momentum, because the box can acquire a net average momentum. Newton’s 3rd law of motion alleges the need for a reaction force for every force. However, as proved in an earlier paper on the cosmological acceleration of the universe, Newton’s “reaction force” for the cosmological acceleration is precisely that required for quantum gravity given the gravitational cross-section (see figure 1 in reference 1) calculated from the observed neutrino-proton scattering cross-section scaled to gravity using the observed ratio of the gravitational to the weak interaction coupling, and Feynman’s rule that the cross-section is proportional to the square of the coupling for a two-vertex Feynman diagram (see figures 1, 2, 5 and 6 in reference 1).

Fish swim in water by exerting an effective force in the fluid they are immersed in. Similar physics applies to submarines, aircraft, helicopters, fans, etc. Point being made: you simply don’t need to push against a solid or to expel exhaust gas to accelerate through a particulate-composed fluid like air (or, presumably, gravity quanta). Thus, if an analogous quantum gravity space field theory is correct, it is proved by constructing a machine that accelerates through space without rocket exhaust; by exerting reaction forces via the space-time fabric (graviton field).

(The distortion of the graviton field could be called a “space warp” to pander to science fiction, for publicity and marketing purposes.) This paper proves the theory and experimental testing of the machine, and discusses its applications. It works simply like a gym rowing machine, by using energy to oscillate a mass within a fixed frame, the net force results from ensuring that the acceleration of the mass in one direction is always larger than on the return stroke in the other direction. Since force is the rate of change of momentum ($F = dp/dt$), it was possible by using a self-powered human as the mass on a standard gym rowing machine (approximately 2 metres long) on a smooth wooden floor, to modulate forward and backward impulses to create a net motion (either forwards or backwards as desired) exceeding 1 foot/minute at 40 strokes/minute. This basic mechanism can be employed in satellites for non-gas based “thrusters” and in a very powerful form using a superconducting electromagnet to oscillate mass vertically, against gravity, as an alternative to the use of large air fans such as helicopters and jet engines. Such space warp thrusters will automatically also be suitable for vacuum uses, i.e. for space travel.

INTRODUCTION: THE SPACE WARP MECHANISM AND EXPERIMENTAL DATA



Fig. 1: typical gym rowing machine (experimental graviton space warp thruster) with sliding seat and resistance pull chain. The whole machine shifts forwards or backwards slightly of the operator’s accelerations cause a net a reaction force ($F = dp/dt$) on the machine by Newton’s 3rd law of motion. By ensuring that more force (and less time) is used when going in one direction than in the other, the entire machine will be moved along a smooth floor in any preferred direction. The “deep intelligence” needed to observe and correctly interpret the implications of this effect stems from heresy. Having already made calculations (reference 1) that are correct and which show that the reaction force for the cosmological acceleration is mediated by graviton radiation (the mechanism predicted the cosmological

acceleration in 1996, two years before observation), it is pretty obvious to this author. However, it is equally obvious that the reality of this simple physical mechanism for space satellite and space vehicle non-gas “thrusters” will be held up by bigotry for precisely the same reason: overcoming prejudice and “established wisdom” about whether there are really “laws of physics,” or whether *mechanisms* exist.

An earlier paper⁽¹⁾ describes experimental checks, such as the experimental measurements of the cosmological acceleration of the universe by automated CCD telescope supernova observations, which in 1998 confirmed a quantum gravity theory proposed in 1996. This paper proves theoretically and experimentally the spin of the graviton by demonstrating a closed-system thruster that exerts force without needing to either push against a solid/liquid/gas or expel exhaust to “visibly conserve momentum” in the context of Newton’s 3rd law of motion (the equal and opposite reaction to every force). This is a revolutionary “space warp drive” or graviton based thruster: *the equal and opposite reaction is carried by gravitons*, i.e. by neither by exhaust gas nor by the blowing of air (by propellers/jet engines/helicopter blades) or water (submarine/ship water jets/propellers/paddle wheels).

This new development was the result of an experiment on 20 December 2012 on a gym rowing machine that had been relocated from carpeted floor to a relatively smooth wooden floor (the rower was not on wheels, so there was still considerable friction) while the gym was refurbished (Figure 1). It was noticed that the rower moved due to the *rate of change* of the momentum, and that by altering or modulating the force employed at different stages in the back-and-forward strokes (involving the motion of a 74 kg human a total distance of approximately 2 metres, at over 40 strokes per minute, i.e. over 80 metres per minute) the rower as a whole (including the human) *could be moved either forward or backwards as desired at a net rate of over 0.3 metres per minute*.

THEORETICAL BASIS AND ERROR RISKS: PREJUDICES

An innovative preliminary physics paper must take a risk of being wrong, but should also make a good effort to establish the *theory* and *experimental evidence* and *present it honestly, not dogmatically*. A

good example of crackpot physics on a subject related to this paper is Professor Eric Laithwaite's 1974 BBC TV Royal Institution Christmas Lectures on the alleged failure of the laws of physics for gyroscopes: Laithwaite presented the angular inertial stability of heavy spinning gyroscopes as an anti-gravity effect. For example, while the axis of a very heavy spinning gyroscope was allowed to fall from a vertical to a horizontal angle, he claimed its net weight was reduced, which he claimed was an important anti-gravity effect. Being Professor of Electrical Engineering at Imperial College, London, this was a pet theory of his and he felt that he had not been taken seriously by the mechanical engineers who were simply not interested and believed too dogmatically or religiously in Newtonian classical physics. He finished the Christmas lectures (<http://www.youtube.com/watch?v=KnNUTOxHoto>) with an episode called "The Engineer Through the Looking Glass," a scathing attack on establishment physics that did finally inspire some interest from the establishment, alas the wrong type. They complained of his heretical attitude and finally did some calculations to show that Newtonian physics did correctly *predict* all the gyroscope phenomena Laithwaite had demonstrated during the Lecture series! Of course it did. Yet the concept of angular momentum and the inertial stability of a spinning top remains counter-intuitive. *Why (physically, not mathematically) does a spinning top remain stable (standing upright on a point while spinning), while a non-spinning one is unstable and falls over?*

We had to confront this question using quantum gravity. It turns out simply that the acceleration of mass (the charge of quantum gravity) causes directed emission of gravitational radiation, analogous to the emission of electromagnetic radiation (like radio waves) from accelerating electrical charges in an antenna, producing stability. The spinning matter in a top has an acceleration of $a = v^2/r$, where v is spin velocity and r is the radius from the axis of spin. The theory of quantum gravity we're using is just quantum electrodynamics but with a single sign of charge and a suitably smaller coupling. The classical theory of general relativity is still being used to justify allegedly "non-observed gravitational waves," when in fact quantum gravity considerations tell us that we are observing effects from the emission of gravitational radiation all the time, e.g. inertia (a radiation resistance to the acceleration of mass/gravitational charge). Anyone⁽¹⁾ who points out the Emperor's New Clothes (the classical delusions of using non-quantum general relativity to "establish" the spin of the gravity quantum) is simply censored out by taboo religion based on the authority of hotshots who failed at quantum gravity.

Science is consensus, fashion, and non-open politics (undemocratic, dictatorial, religious orthodoxy). "Doublethink" politics however insists that science is open to new ideas, ignoring the battles that new ideas must go through to merely get a fair hearing (rather than having the messenger shot simply for daring to deliver a new idea). The point is that science, far from being the one subject ruled by facts and logic, is a religion ruled by taboos and heresies, by censorship and dictatorship. Anyone trying to innovate is immediately suspect on two counts. First, it's not really clever to break a taboo, and to try to pass off that taboo breaking as brilliance. Nobody buys that, and it's a little like Linus Pauling's two Nobel Prizes. He received one for chemistry (e.g., failing to discover the structure of DNA) but claimed he was most proud of the "Nobel Peace Prize," received (along with the Lenin Peace Prize from Moscow) for making up lies about the effects of radiation in bone due to strontium-90 from nuclear weapon tests. Like strontium-90, radium is concentrated in the bones, but as Herman Kahn pointed out in 1959, studies of the radium dial painters proved a dose-rate threshold for cancer⁽²⁾ which was far higher than anyone could get from fallout. More recent work exhuming the skeletons of the radium dial painters confirmed this fact. Pauling's prizes for lying go to the heart of pseudoscience.

(a) The public wants superstring, 10 dimensional superstring branes residing on 11 dimensional supergravity bulks, with 10^{500} metastable vacua or parallel universes. (b) They want this stuff because it is alloyed to science fiction by Professor Michio "anti-nuclear" Kaku, Ed "anti-science" Witten, and other media personalities. (c) The public do *not* want mechanical explanations with confirmed predictions. Merely pointing out this fact is enough to generate guesswork attacks on the messenger as being "bitter," without any effort to understand how bitterness is generated and its validity today.

"I did not think, I investigated." – Roentgen on discovery of X-rays (during interview).

Roentgen's discovery of X-rays occurred because *he failed to ignore evidence, but instead investigated the details*. Lord Kelvin claimed X-rays a hoax, because they disagreed with his "vortex atom" theory! It's pretty obvious that we can do two kinds of "thinking" about data. One kind of thinking consists of "thinking" about the political difficulties involved in trying to publish or convince the world of a new theoretical explanation to some data. This is Orwell's "crimestop" thinking. You think it won't be accepted, life is short, you don't have the time/patience/energy/money to fight a war against

bigotry/taboo/groupthink/officialdom in science. So you effectively censor yourself, and so does everyone else. In this way, science becomes concerned a defensive authoritarian religion, where the Last Supper is enacted in a one-to-many format without any two-way discussions. When a kid, before First Communion, I was taught that Communion was a kind of re-enactment of the Last Supper: “do this in memory of me.” What a lovely idea! But of course, it isn’t a shared meal between true believers (with the odd doubter and betrayer thrown in), but is a manufactured out of whole cloth by medieval science quacks like Thomas Aquinas who alloyed religion with Aristotle’s metaphysics, leading eventually to the burning of Bruno and the arrest of Galileo for heresy. These conservative officials destroyed religion by hardening doublethink dogmas, whereby the true meaning of religion was relegated to token symbolism, and metaphysics took the place of Jesus’s message.

These people in religion are analogous to the journal editors like ‘t Hooft in theoretical physics today. All radical innovations must come from the “right people” to be published, they must be written up in the “right way” and pay homage to status quo ideas like string theory. They must therefore be highly political, yet this is viewed dogmatically as being apolitical. The doublethink is that deep. To put it mildly, their role is more about preserving at best useless or more usually dangerous taboos and traditions, than about defending and protecting the mere interests in scientific objectivity and radical progress. (To denounce these sinners brings out a flood of “shoot the messenger” anger from the faithful and deluded followers, the guardians of the lynch mobs of dogma. It also targets you and tries to coerce you. Having been censored for fifteen years while making polite submissions, you receive rude messages claiming you’ll “now not be published if you are rude.” Surely facts aren’t “rude”?) The word “rude” is pretty subjective, and therefore highly useful for censoring facts. Anything that is unorthodox and censored out is denounced as rude, before lies are made up to act as strawman arguments to “close down the heretical debate” that has never been allowed to occur in the first place.

SPIN-2 GRAVITON DOGMA ERRORS

It is pretty remarkable how well reference 1 has been ignored due to spin-2 prejudices based on the false smooth stress-energy tensor differential geometry of classical general relativity. Someday in distant future, the process of using an arbitrary classical theory to dogmatically dictate the nature of the quantum of gravity is absurd. General relativity doesn’t predict any quantum; it’s a classical theory not a quantum one. This is the most contrived piece of nonsense sophistry in the history of science, worse than phlogiston, caloric or vortex atoms. Let’s face it, you can use rank-1 diverging field lines to describe gravity, just as in electromagnetism. The rank-2 tensors of general relativity come from the arbitrary decision to use space-time curvature as the description for gravity, not from observation. Space-curvature is replaced by discrete graviton (quantum) exchange Feynman diagrams in quantum gravity. So the whole basis for inferring spin-2 gravitons from rank-2 stress-energy tensor coupling is deluded prejudice from classical physics of an arbitrary kind. If you use classical diverging field lines for gravity, you have rank-1 tensors (ordinary vectors, e.g. the divergence vector) implying spin-1.

Reference 1 gives further evidence of different types against spin-2 gravitons. The reason for spin-2 graviton hype becoming dogma is now tied strongly to Edward Witten’s M-theory propaganda. Witten stated on page 25 of his *Physics Today* article in April 1996: “these theories have (or this one theory has) the remarkable property of *predicting gravity* [emphasis by Witten] – that is, of requiring the existence of a massless spin-2 particle whose couplings at long distances ate those of general relativity.” This is trash: general relativity is wrong at long distances where it failed to predict the cosmological acceleration of the universe, unlike quantum gravity (as proved in reference 1). So Witten plays the role of the censor, by simply asserting false statements which “peer-reviewers” used to censor us repeatedly for the past 16 years. This is a travesty of scientific ethics. It is corruption.

REFERENCE

- (1) <http://vixra.org/abs/1111.0111> PDF download, also located at <http://archive.org/details/QuantumGravitySuccesses> and <http://www.scribd.com/doc/114677853/Quantum-Gravity-Successes> in online readable formats, on and on amazon as the book: “Quantum gravity and the Standard Model.” This is in a nascent and preliminary form. A properly organised textbook is on the way.